

exist, or exists only in an insufficient degree. The description of these experiments being too long to find a place in a summary, I shall conclude with a statement of the process which I have seen employed by the *Argyroneta* when it wished to convey from the surface a supplementary mass of air, destined either for the formation of its dwelling, or for the renewal of the air in the latter. When the *Argyroneta* is examined with the lens, we easily see that its posterior femora are furnished with thick hairs. If, now, we surprise the animal when it is in search of a supplementary mass of air, we find that at the moment when it is about to quit the surface of the water it separates its posterior femora pretty widely, and that, when it dives, a comparatively large gaseous mass on each side of the abdomen unites the ordinary stratum of air to the inner surface of the femora. In swimming to regain its dwelling, the animal only employs the movements of its anterior limbs. What then takes place in the cell or in the nest I have been unable to ascertain; but we may suppose that the spider applies the femora to its body, and thus throws off the portions of air of which I have just been speaking. In any case, when the *Argyroneta* again quits its cell or its nest, its posterior legs are in their normal position, and the quantity of air entangled between them and the abdomen is insignificant.

BIBLIOGRAPHICAL NOTICE.

Contributions towards a Cybele Hibernica, being outlines of the Geographical Distribution of Plants in Ireland. By D. MOORE, Ph.D., and A. G. MORE, F.L.S. Dublin, 1866, pp. 56, 399.

THE title of this work, 'Cybele Hibernica,' will at once inform our readers of its primary object. It is an attempt to do for Ireland what Mr. H. C. Watson performed for Great Britain in his 'Cybele Britannica;' and the authors have succeeded in doing this far more completely than they themselves seem inclined to allow. The country is divided into twelve botanical districts in such a manner as to mark, as far as possible, the peculiarities of the flora: three are central and do not touch the seacoast at all; the others all contain a considerable extent of coast: two are western, so as to include the peculiar *Atlantic* plants of Kerry, Galway, and Mayo. These districts were first proposed by Prof. C. C. Babington in a paper read to the Dublin University Zoological and Botanical Association and published by it; but he has there, perhaps unadvisedly, attempted to divide these "provinces," as he calls them, into more minute districts. Apparently our authors have done well in making his provinces their districts and neglecting, at least for the present, the smaller subdivisions pointed out in that paper.

In the Introduction we have a table of the mean temperature for the four seasons of the year as derived from observations made at sixteen places situated in as many different counties of Ireland, derived from Dr. Lloyd's elaborate essays to be found in the 'Transactions of the Royal Irish Academy.' From this it appears that the mean annual temperature differs very slightly from that of South Britain. But it is the temperatures of summer and winter that chiefly affect the character of the vegetation. The mean of summer heat is 2° (Fahr.) lower in Ireland, and that of the winter is about 2° higher. It results from this that many tender plants will bear the winter of Ireland, especially of the western and south-western counties, which are killed by frost in England; and a difference is even apparent between the east coast, as at Dublin, and the west: several plants indigenous to the latter suffer much from frost in the Glasnevin Garden. On the other hand, the lower summer temperature and the damper climate render wheat a precarious crop in many parts of Ireland. The mean rainfall is shown for sixteen places: for the whole island it was 30.50 inches in the year 1851, but the difference between the least and greatest fall is very great; at Portarlinton it was only 21.23 inches, at Cahirciveen 59.37. The latter place and others which approach the same amount of rainfall are situated on the western coast and receive the full discharge of the clouds from over the gulf-stream when they first touch the mountains.

The distribution of the native plants depends greatly upon these peculiarities of climate, and the character of the flora is also much affected by them. On the western coast several plants abound which point to the south-west of Europe as their proper home: the Robertsonian Saxifrages, *Erica Mackaiana*, *Arbutus Unedo*, *Dabeocia polifolia*, and *Pinguicula grandiflora* may be mentioned. Plants included under Mr. Watson's Atlantic type are numerous, 41 out of 70 species being found; on the other hand, only 18 out of 127 of his Germanic type are natives of Ireland. The Alpine flora is poor; scarcely more than a third of Watson's Highland species have been found. Indeed we have observed in Ireland, as in the Hebrides, that the vegetation scarcely alters as we ascend a lofty mountain, and that it is unusual to find any plants peculiar to its upper part or to notice the deficiency of the lowland plants at high elevations.

After the Introduction a valuable table, showing the distribution of each plant through the districts, is given. It shows at a glance the absence or presence of the plants from the several parts of the country. It is similar to the tables drawn up by Mr. Watson for Great Britain.

The bulk of the work is formed of a detailed account of the distribution of each species. We can best point out the mode and fullness with which this is done by a short extract taken from the second page of the book.

"2. *Thalictrum minus* (Linn.)—*Lesser Meadow-Rue*.

"Districts 1 - 3 4 5 6 7 8 9 - - 12
 "Lat. 51° – 56° . From South to North of Ireland.

“ Type in Great Britain, Scottish, inclining to British.

“ Stony places and sandhills; local. *Fl.* June to August.

“ 1. Ross-wood, Killarney; *Wade Rar.* Cliffs at Gap of Dunloe, near Killarney; *Flor. Hib.* Mangerton; *I. C.* On Sugar-loaf Mountain, Glengarriff; *I. C.*—3. In a meadow near Mountmellick; *Wade Rar.*—4. Shore near Rockfield, Wicklow; *D. M.*—5. Baldoyle! Portmarnock! Ireland’s Eye! *Flor. Hib.* Shore between Clontarf and Raheny; *Wade Rar.*—6. In many parts of the limestone district of north Clare and Galway; *A. G. M.*—7. Shores of Lough Ree in Westmeath and Longford; *Mr. F. J. Foot.*—8. In various parts of Mayo, especially near the large lakes; *A. G. M.*—9. Ben Bulbin, Sligo (*T. calcareum*); *Mr. J. Ball* (*Bot. Gaz.* i. p. 312).—12. Newcastle and Dundrum Bay, Down; Belfast Bay; Portmore Park and Lough-Beg, Antrim; *Flor. Ulst.* On basaltic rocks at Glenariff; *D. M.*

“ Ranges from sea-level to 1500 feet or more.

“ *T. flexuosum* (Bernh.) *T. majus* (Flor. Hib.)

“ Districts - - - - - 6 - 8 9 - - 12

“ Rocky and bushy places; rare.—6. On a hill south of Black Head, in Clare; *Mr. F. J. Foot.* On the shores of Lough Derg, near Portumna; *D. M.*—8. Near Headford, Galway (*Mr. Shuttleworth*); *Flor. Hib.* On an islet called Canova, in Lough Corrib; *A. G. M.* Near Pontoon, by Lough Conn! *Ir. Flor.*—9. By Lough Carra, Mayo; *Mr. J. Ball*, who mentions a large form of *Thalictrum* growing here (*A. N. H.* vol. ii. p. 35).—12. At the base of Slieve Donard, on the ascent from Kilkeel; *Flor. Hib.*

“ This is considered by *Mr. Boswell Syme* as a ‘subspecies,’ and placed under *T. minus* in his edition of English Botany.

“ 3. *T. flavum* (Linn.)—*Marsh Meadow-Rue.*

“ Districts - 2 3 4 5 6 7 8 9 10 - 12

“ Lat. 52°–56°. Throughout Ireland, but local.

“ Type in Great Britain, English.

“ River-sides and marshy places; rather rare. *Fl.* June, July.

“ Quite a local plant, though recorded from nearly all the districts.”

An Appendix contains lists of plants which, there is reason to believe, were recorded erroneously by *Dr. Smith* in his histories of Kerry, Cork, and Waterford; and by *Dr. Wade* as seen by him in the west.

It will be seen from what we have said that this is really a new and carefully revised Flora of Ireland. Such a book was very much wanted, for thirty years have passed since the publication of *Mackay’s ‘Flora Hibernica,’* thirty years of much more active research than those that preceded the preparation of that work. It had therefore become nearly obsolete. The authors have wisely omitted descriptions of the genera and species, as they are to be found in the “excellent and portable Floras in the hands of British

botanists," and given in their place a very complete account of the geographical distribution of the plants.

We have made much use of this volume, and can recommend it confidently to all botanists as being a very complete and critical flora of Ireland. Much care has been taken and sound judgment exercised in deciding upon what species are to be considered as native and what as introduced into Ireland; and the authors have stated their reasons for the exclusion or omission fully in each case.

PROCEEDINGS OF LEARNED SOCIETIES.

ROYAL SOCIETY.

February 21, 1867.—Dr. W. A. Miller, Treasurer and Vice-President, in the Chair.

"A brief Account of the 'Thesaurus Siluricus,' with a few facts and inferences." By J. J. BIGSBY, M.D.

I have been led to attempt the preparation of a general view of Silurian life, as far as now known, by my own frequent want of such a record or muster-roll of the constituent members of this great initiatory division of palæozoic zoology,—a task which has been made pleasant by some personal knowledge of two countries rich in the earlier formations.

I have been further encouraged by the great accumulations of the last few years, through the establishment in North America and elsewhere of numerous colleges, each of them having become the centre of more or less field-work. Far more aid still has been derived from many public surveys on a tolerably liberal scale. Nor can we forget the highly meritorious and successful labours which have been, and still are, carried on by private individuals in almost every part of Europe and North America.

As this undertaking required an exactitude and a critical skill in determining species and genera according to late improvements in classification, much beyond an ordinary acquaintance with Silurian life, after my materials were put together, I obtained the very valuable aid of Mr. J. W. Salter, late Palæontologist at the London Museum of Practical Geology.

I was then, through the kindness of Sir Roderick I. Murchison, Bart., allowed to submit my manuscript to Robert Etheridge, Esq., F.R.S.E., the present Palæontologist to the Institution over which Sir Roderick presides.

To the careful superintendence of these two eminent naturalists I am indebted for corrections and suggestions of the greatest importance, and particularly as relates to Britain and to Europe generally.

My matter has been principally found in the voluminous and truly priceless writings of Murchison, Sedgwick, Barrande, Sowerby, De Verneuil, James Hall, McCoy, Salter, Billings, Angelin, Eichwald,